 Name Solutions

Homework 1.3

Date

Solve each system by elimination.

1) $5x - 2y = -26$
$+\ -5x + y = 23$

opp ∴ add

$-y = -3$

$y = 3$

$5x - 2(3) = -26$
$+6 \quad +6$

$\frac{5x}{5} = \frac{-20}{5}$

$x = -4$

∴ PoI is $(-4, 3)$

2) $8x + 10y = 26$
$+\ -2x - 10y = -14$

$\frac{6x}{6} = \frac{12}{6}$

$x = 2$

$8(2) + 10y = 26$
$-16 \quad -16$

$\frac{10y}{10} = \frac{10}{10}$

$y = 1$

∴ PoI is $(2, 1)$

3) $3x + 3y = -3$
$-\ (2x + 3y = 5)$

same ∴ subtract

$x = -8$

$3(-8) + 3y = -3$
$+24 \quad +24$

$3y = -21$

$y = -7$

∴ PoI $(-8, -7)$

4) $-9x - 3y = 24$
$-\ (-9x + y = -8)$

$\frac{-4y}{-4} = \frac{32}{-4}$

$y = -8$

$-9x - 3(-8) = 24$
$-24 \quad -24$

$-9x = 0$

$x = 0$

∴ PoI is $(0, -8)$

5) $(8x - 5y = -8) \times 2$
$16x + 2y = -16$

$16x - 10y = -16$
$-\ (16x + 2y = -16)$

$-12y = 0$

$y = 0$

$8x - 5(0) = -8$

$\frac{8x}{8} = \frac{-8}{8}$

$x = -1$

∴ PoI is $(-1, 0)$

6) $-2x + 7y = 3 \rightarrow -2x + 7y = 3$
$2(x + y = 12) \rightarrow +\ 2x + 2y = 24$

$9y = 27$

$y = 3$

$x + 3 = 12$

$x = 9$

∴ PoI is $(9, 3)$

7) $8x + 8y = 24 \rightarrow 8x + 8y = 24$

$2(9x - 4y = 27) \rightarrow +\ 18x - 8y = 54$

$26x = 78$

$x = 3$

$8(3) + 8y = 24$

$24 + 8y = 24$

$-24 \quad -24$

$8y = 0$

$y = 0$

$\therefore$ PoI is $(3, 0)$

8) $2(5x + 6y = -13) \rightarrow 10x + 12y = -26$

$-10x - 10y = 20 \rightarrow +\ -10x - 10y = 20$

$2y = -6$

$y = -3$

$5x + 6(-3) = -13$

$5x - 18 = -13$

$+18 \quad +18$

$5x = 5$

$x = 1$

$\therefore$ PoI is $(1, -3)$

9) $2(-3x + 4y = -10) \rightarrow -6x + 8y = -20$

$3(2x - 6y = -10) \quad +\ 6x - 18y = -30$

$-10y = -50$

$\frac{-10y}{-10} = \frac{-50}{-10}$

$y = 5$

$2x - 6(5) = -10$

$2x - 30 = -10$

$+30 \quad +30$

$2x = 20$

$x = 10$

$\therefore$ PoI is $(10, 5)$

10) $(5x + 10y = 10)6 \rightarrow 30x + 60y = 60$

$(-9x - 6y = 18)10 \rightarrow +\ -90x - 60y = 180$

$-60x = 240$

$\frac{-60x}{-60} = \frac{240}{-60}$

$x = -4$

$5(-4) + 10y = 10$

$-20 + 10y = 10$

$10y = 30$

$y = 3$

$\therefore$ PoI is $(-4, 3)$

11) $(5x + 7y = 23)2$

$(-2x - 3y = -10)5$

$\rightarrow 10x + 14y = 46$

$\rightarrow +\ -10x - 15y = -50$

$-y = -4$

$y = 4$

$5x + 7(4) = 23$

$5x + 28 = 23$

$-28 \quad -28$

$5x = -5$

$x = -1$

$\therefore$ PoI is $(-1, 4)$

12) $(-10x - 7y = 6)9$

$(9x - 4y = -26)10$

$\rightarrow -90x - 63y = 54$

$\rightarrow +\ 90x - 40y = -260$

$-103y = -206$

$\frac{-103y}{-103} = \frac{-206}{-103}$

$y = 2$

$9x - 4(2) = -26$

$9x - 8 = -26$

$+8 \quad +8$

$9x = -18$

$x = -2$

$\therefore$ PoI is $(-2, 2)$